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# TV PHONE IMAGE DISPLAY DEVICE
[TV denwa gazo hyoji sochi]

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Claims

1. A TV phone image display device characterized by the fact that it is provided with: a personal information input device for inputting personal information data,

a registration device that registers the input personal information data,

an image decoding device that extracts and decodes data from telephone signals received from a telephone line,

a collating device that compares image data decoded by the aforementioned image decoding device and the personal information data registered in the aforementioned registration device,

an image storage device that stores image data from the aforementioned image decoding device or image data for transmission,

an image-capturing device that photographs a subject directly and converts to image data,

an image selection device that selects image data from either the aforementioned image-capturing device, an external image input terminal or the aforementioned image storage device according to the results from the aforementioned collating device,

an image encoding device that encodes the image data selected by the aforementioned image selection device,

and an image display device that displays the image data.

2. The TV phone image display device described in Claim 1, characterized by the fact that the image data decoded by the aforementioned image decoding device and the personal information data registered in the aforementioned registration device are compared by the aforementioned collating device, and when they match, image data for the subject photographed directly by the aforementioned image-capturing device are selected by the aforementioned image selection device.

3. The TV phone image display device described in Claim 1 or 2, characterized by the fact that the aforementioned image selection device is provided with a manual selection means.

4. A TV phone image display device characterized by the fact that it is provided with: a personal information input device for inputting personal information data,

a registration device that registers the input personal information data,

an image decoding device that extracts and decodes data from telephone signals received from a telephone line,

a collating device that compares the image data decoded by the aforementioned image decoding device and the personal information data registered in the aforementioned registration device,

an image storage device that stores the image data from the aforementioned image decoding device or image data for transmission,

a character input device for inputting characters,

a character image conversion device that converts input characters to image data and outputs them to the aforementioned image storage device,

an image-capturing device that directly photographs a subject and converts to image data,

an image selection device that selects image data from the aforementioned image-capturing device, an external image input terminal or the aforementioned image storage device according to the results from the aforementioned collating device,

an image encoding device that encodes the image data selected by the aforementioned image selection device,

and an image display device that displays the image data.

5. The TV phone image display device described in Claim 4, characterized by the fact that the aforementioned image selection device is connected to an "away" telephone answering mode input

terminal, and when the away telephone answering mode is set by away telephone answering mode input, the image data stored in the aforementioned image storage device can be selected, output to the aforementioned image encoding device, and transmitted to the other party, while phone signals transmitted from the other party can be decoded to image data by the aforementioned image decoding device and stored in the aforementioned image storage device.

Detailed explanation of the invention

[0001]

Technical field of the invention

The present invention relates to a TV phone image display device control by a TV, PC or the like that has a telephone receiving and transmitting function.

[0002]

Prior art

Previously, a TV phone image display device 1 would comprise an image decoding device 2, an image encoding device 7, an image display device 6, an image-capturing device 11, etc., as shown in Figure 5, which would be mounted in a phone set, PC or the like.

[0003]

Here, image decoding device 2 converts telephone signals from a telephone line to image data and displays the image data on image display device 6. Image encoding device 7 converts image data from image-capturing device 11 and sends them to the telephone line.

[0004]

Such a TV phone image display device 1 calls another party with a telephone set, copies an image to send to image-capturing device 11, and converts to image data and sends to the telephone line with image encoding device 7. The other party's TV phone image display device 1 receives telephone signals from the telephone line, forms image data with image decoding device 2, and displays the image data on image display device 6.

[0005]

Image data are also sent from the other party, and they are received and the image data sent from the other party can be displayed on image display device 6.

[0006]

When the TV phone image display devices 1 are operated to use a telephone, the other party always appears on his own image display device 6, and it is difficult to protect privacy from wrong numbers or unknown persons.

[0007]

In addition, data can be input basically only with image-capturing device 11, so that the time-consuming work of writing text and photographing it is necessary.

[0008]

Problems to be solved by the invention

Previously, as described above, the other party or the inside of his home will always appear on the image display device 6 of his phone for wrong numbers or unknown persons, so there is the problem that protecting privacy has been difficult. In addition, when one wants to transmit information with text, the time-consuming work of first writing text and photographing it is necessary, with the problem that ease of use is poor.

[0009]

So, in consideration of the aforementioned problems, the objective of the present invention is to provide a TV phone image display device that makes it possible to select the image data sent to the other party so as to protect privacy, and that improves ease of use when text information, such as an away telephone answering message, is transmitted or received by providing a text input function, with a TV, PC or the like that has a telephone receiving and calling function.

[0010]

Means to solve the problems

The invention described in Claim 1 is characterized by the fact that it has: a personal information input device for inputting personal information data, a registration device that registers the input personal information data, an image decoding device that extracts and decodes data from telephone signals received from a telephone line, a collating device that compares image data decoded by the aforementioned image decoding device and the personal information data registered in the aforementioned registration device, an image storage device that stores image data from the

aforementioned image decoding device for image data for transmission, an image-capturing device that photographs a subject directly and converts to image data, an image selection device that selects image data from either the aforementioned image-capturing device, an external image input terminal or the aforementioned image storage device according to the results from the aforementioned collating device, an image encoding device that encodes the image data selected by the aforementioned image selection device, and an image display device that displays the image data.

[0011]

With the invention in Claim 1, personal information data, such as name, telephone number, image, and voice can be registered. Image data such as name, telephone number, image and voice transmitted from another party and registered personal information data can also be compared. In addition, it is possible to realize a TV phone image display device with which it is possible to select the image data to transmit according to the results from the collating device.

[0012]

The invention described in Claim 2 is characterized by the fact that the image data decoded by the aforementioned image decoding device and the personal information data registered in the aforementioned registration device are compared by the aforementioned collating device, and when they match, image data for the subject photographed directly by the aforementioned image-capturing device are selected by the aforementioned image selection device.

[0013]

With the invention in Claim 2, it is possible to realize a TV phone image display device with which image data that are transmitted from another party and decoded can be compared with registered personal information data, and when they match as a result of the comparison, image data of the subject, such as the user's appearance or the inside of his home, which are photographed directly by the aforementioned image-capturing device can be selected and transmitted as image data to transmit to the other party.

[0014]

The invention described in Claim 3 is characterized by the fact that the aforementioned image selection device is provided with a manual selection means.

[0015]

With the invention described in Claim 3, it is possible to realize a TV phone image display device with which the user can operate the image selection device manually and can freely select image data to transmit to another party, regardless of the result of comparison of decoded image data transmitted from another party and registered personal information data.

[0016]

The invention described in Claim 4 is characterized by the fact that it has: a personal information input device for inputting personal information data, a registration device that registers the input personal information data, an image decoding device that extracts and decodes data from telephone signals received from a telephone line, a collating device that compares the image data decoded by the

aforementioned image decoding device and the personal information data registered in the aforementioned registration device, an image storage device that stores the image data from the aforementioned image decoding device or image data for transmission, a character input device for inputting characters, a character image conversion device that converts input characters to image data and outputs them to the aforementioned image storage device, an image-capturing device that directly photographs a subject and converts it to image data, an image selection device that selects image data from the aforementioned image-capturing device, an external image input terminal or the aforementioned image storage device according to the results from the aforementioned collating device, an image encoding device that encodes the image data selected by the aforementioned image selection device, and an image display device that displays the image data.

[0017]

With the invention in Claim 4, personal information data such as name, telephone number, image and voice can be registered, and the image data to transmit to another party can be selected according to the result of comparing name, telephone number, image voice or other decoded image data transmitted from another party and registered personal information data. It is also possible to realize a TV phone image display device with which information using characters, such as an away telephone answering message, can simply be transmitted or received by providing a character input function for inputting characters and converting to image data, and that can also be used easily by people who have difficulty with hearing or sight.

[0018]

The invention described in Claim 5 is characterized by the fact that the aforementioned image selection device is connected to an away telephone answering mode input terminal. When the away telephone answering mode is set by away telephone answering mode input, image data stored in the aforementioned image storage device can be selected, output to the aforementioned image encoding device and transmitted to another party, and at the same time, telephone signals transmitted from the other party are decoded into image data by the aforementioned image decoding device, and are stored in the aforementioned image storage device.

[0019]

With the invention in Claim 5, away telephone answering mode input is provided to the image selection device to switch to an away telephone answering mode, and when the away telephone answering function is enabled, image data, such as a stored away telephone answering message, can be transmitted to the other party. It is also possible to realize a TV phone image display device with which a response from the other party to the user's away telephone answering message is transmitted from the other party, and after the decoded image data are stored, the user can view it with the image display device.

[0020]

With the TV phone image display devices of the present invention described in Claims 1 to 5, image data transmitted to another party by the user in response to a call by the other party can be selected with automatic or manual operation, and privacy can be protected. In addition, it is possible to realize a TV phone image display device with which information using characters, such as an away telephone

answering message, can be easily transmitted and received, and that can be used easily by people with difficulties with hearing or sight.

[0021]

Embodiments of the invention

Embodiments of the present invention will be explained referring to Figure 1 to Figure 4. Figure 1 is a block diagram showing a TV phone image display device based on a first embodiment of the present invention. The parts that are the same in Figure 1 and Figure 5 are identified using the same symbols.

[0022]

In Figure 1, TV phone image display device 1 comprises an image decoding device 2, a collating device 3, a registration device 4, a personal information input device 5, an image display device 6, an image encoding device 7, an image selection device 8, an image storage device 9, an external image input terminal 10, and an image-capturing device 11. External image input terminal 10 is connected to a TV, VTR, movie camera, camera or the like.

[0023]

Note that TV phone image display device 1 based on the first embodiment of the present invention is configured so that image display device 6 is connected to registration device 4, image storage device 9 and image selection device 8, and registered content for personal information data, stored content or selected content in the devices can be confirmed by displaying on image display device 6.

[0024]

With TV phone image display device 1 based on the embodiment of the present invention, when personal information is registered in TV phone image display device 1, name, telephone number, image voice or other personal information data for any preselected person, such as family or an acquaintance, are input with personal information input device 5, and registration is ended by registering in registration device 4. Name, telephone number, image, voice and other personal information data can be registered in this way.

[0025]

Next, the function of each device will be explained.

[0026]

Image decoding device 2 reads telephone signals from the telephone line, extracts data such as name, telephone number, image and voice, decodes them, and converts to image data. Image decoding device 2 is also connected to image storage device 9 and can store image data transmitted from another party in image storage device 9.

[0027]

Image data decoded by image decoding device 2 are verified for the presence of data by collating device 3. If data are present, they are checked with the personal information data previously input from personal information input device 5 and registered in registration device 4, and are processed by image selection device 8. On the other hand, if no data are present, the call is ended and processing is complete.

[0028]

With image selection device 8, based on the result of checking by collating device 3, displaying image data for a subject photographed directly by image-capturing device 11 (user's appearance or the inside of his home), or displaying an external image input from a TV, VTR, movie camera or camera connected to external image input terminal 10, or preselecting image data already stored in image storage device 9 is selected as image data to transmit to the other party. On the other hand, the user can manually operate image selection device 8 and freely select image data to transmit to the other party regardless of the results of comparison.

[0029]

Image storage device 9 can store image data to transmit to the other party and image data transmitted from the other party.

[0030]

The image data selected by image selection device 8 are sent to image encoding device 7.

[0031]

Image encoding device 7 encodes the selected image data by converting to telephone signals, sends to the telephone line, and transmits to the other party.

[0032]

Using these functions, name, telephone number, image, voice or other personal information data can be registered, and name, telephone number, image voice or other decoded image data transmitted from another party can be checked with the registered personal information data. When decoded image data and registered personal information data match based on the result from collating device 3, image data of a subject photographed directly by image-capturing device 11 (the user's appearance or the inside of his home) can be selected as image data to transmit to the other party.

[0033]

Next, the operation of this first embodiment will be explained referring to Figure 3. Figure 3 is a flow chart explaining the operation from checking of data to selection of image data in Figure 1 when there is a phone call.

[0034]

In Figure 3, when there is a phone call, data such as the name, telephone number, image or voice are extracted by image decoding device 2 from the telephone signal transmitted from the other party, and are gathered as image data. The present decoded image data is verified by collating device 3 (step S1), and if there are none, the call is ended and processing is ended (step S5).

[0035]

If there are image data decoded by image decoding device 2, personal information data already registered in registration device 4 are checked against those data by collating device 3 (step S2).

[0036]

On the other hand, image selection device 8 can be operated manually by the user while verifying selected content with image display device 6, and image data to transmit to the other party can be selected freely, regardless of the result of comparison by collating device 3.

[0037]

If there is a match with the registered data as a result of comparison (step S3), image data to display a subject photographed directly by image-capturing device 11 (the user's appearance or the inside of this home) are selected by image selection device 8 (step S4), and processing ends (step S5).

[0038]

If there is no match with the registered personal information data as a result of comparison (step S3), whether to select an externally input image photographed by a TV, VTR, movie camera, camera, etc., connected to external image input terminal 10, or image data already stored in image storage device 9 is determined (step S6). Selection of an externally input image is step S7, and processing ends (step S5).

[0039]

Selecting image data stored in image storage device 9 is step S8, and processing ends (step S5).

[0040]

Next, a TV phone image display device based on a second embodiment of the present invention will be explained. Figure 2 is a block diagram showing TV phone image display device 1 based on the

second embodiment of the present invention. The parts that are the same in Figure 1, Figure 2 and Figure 5 will be explained with the same symbols.

[0041]

In Figure 2, TV phone image display device 1 comprises an image decoding device 2, a collating device 3, a registration device 4, a personal information input device 5, an image display device 6, an image encoding device 7, an image selection device 8, an image storage device 9, an external image input terminal 10, an image-capturing device 11, and an away telephone answering mode input terminal 14. External image input terminal 10 is connected to a TV, VTR, movie camera, camera or the like. Away telephone answering mode input terminal 14 is connected to image selection device 8, and it is possible to switch to away telephone answering mode by operating away telephone answering mode input terminal 14.

[0042]

Note that TV phone image display device 1 that comprises an image decoding device 2 based on the second embodiment of the present invention is configured so that image display device 6 is connected to registration device 4, image storage device 9 image selection device 8, and character image conversion device 12, and registered content for personal information data, stored content or selected content in the devices can be confirmed by displaying them on image display device 6.

[0043]

When personal information data are registered in TV phone image display device 1 based on the second embodiment of the present invention, the registration method is the same as with TV phone

image display device 1 based on the first embodiment of the present invention explained previously. The functions of image decoding device 2, collating device 3, registration device 4, personal information input device 5, image display device 6, image encoding device 7, external image input terminal 10, and image-capturing device 11 are also the same, and only image selection device 8 and image storage device 9 are different. In addition, a character input device 13, character image conversion device 12, and away telephone answering mode input terminal 14 have been added.

[0044]

Next, the functions of image selection device 8, image storage device 9, character input device 13, character image conversion device 12, and away telephone answering mode input terminal 14 will be explained.

[0045]

Characters can be input with character input device 13, and the input characters are converted to image data by character image conversion device 12. The converted image data, such as an away telephone answering message, are stored in image storage device 9.

[0046]

Image storage device 9 can store image data, such as an away telephone answering message, to transmit to the other party, and image data transmitted from the other party.

[0047]

Away telephone answering mode input terminal 14 is connected to image selection device 8. When the away telephone answering mode has been set by away telephone answering mode input, image data, such as an away telephone answering message, can be selected, stored in image storage device 9, output to image encoding device 7, and transmitted to the other party, while at the same time, telephone signals transmitted from the other party can be decoded into image data by image decoding device 7 [sic; 2] and stored in image storage device 9.

[0048]

Using these functions, text information, such as an away telephone answering message, can be input and transmitted to the other party.

[0049]

Next, the operation of the second embodiment of the present invention will be explained referring to Figure 4. The operation from when a call arrives, to the selection of image data, is the same as the operation in the first embodiment explained previously, so the operation of image selection when the character input function in the second embodiment is used for away telephone answering will be explained.

[0050]

Figure 4 is a flow chart explaining the image selection operation when the away telephone answering mode has been enabled by operation of away telephone answering mode input terminal 14 in Figure 2.

[0051]

First, whether the user has set the away telephone answering function is determined (step S11). When there is a call from another party, and the user has not enabled the away telephone answering function, [processing] proceeds to the flow chart in Figure 3 whereby operations performed are those beginning with checking of data when there is a call, to selection of image data (step S17).

[0052]

When the user has enabled the away telephone answering function, image data for an away telephone answering message already input from personal information input device 5 and registered with registration device 4 are selected by image selection device 8, encoded and converted to telephone signals by image encoding device 7, sent to the telephone line, and transmitted to the other party (step S12).

[0053]

Whether there is a reply from the other part in response to the away telephone answering message from the user is also determined (step S14). If there is, the telephone signals transmitted from the other party are decoded by image decoding device 2 and stored (step S15) in image storage device 9 as image data, and then the user can view that with image display device 6.

[0054]

When there is no reply from the other party, processing ends (step S16).

[0055]

Note that when the user makes a call, the operation of the other party's away telephone answering function will be the same as explained in Figure 4, but with the other party's and the user's viewpoints switched.

[0056]

In this way, automatically selecting an image of a subject photographed directly by image-capturing device 11 (the user's appearance or the inside of his home), or another image, or transmission and reception of text information, such as an away telephone answering message, is controlled.

[0057]

Effects of the invention

With the present invention, as described above, it is possible to realize a TV phone image display device with which image data to transmit to the other party can be selected so as to protect privacy by means of a function for registering personal information data being provided for a TV, PC or the like having a telephone transmitting and receiving function, and with which ease of use can be improved when transmitting and receiving text information, such as an away telephone answering message, by providing a character input function.

Brief description of the figures

Figure 1 is a block diagram of a TV image display device pertaining to a first embodiment of the present invention.

Figure 2 is a block diagram of a TV image display device pertaining to a second embodiment of the present invention.

Figure 3 is a flow chart explaining image data selection operation in Figure 1 and Figure 2.

Figure 4 is a flow chart explaining operation of the away telephone answering function in Figure 2.

Figure 5 is a block diagram of a conventional TV phone image display device.

Explanation of symbols

1 TV phone image display device

2 Image decoding device

3 Collating device

4 Registration device

5 Personal information input device

6 Image display device

7 Image encoding device

8 Image selection device

9 Image storage device

10 External image input terminal

11 Image-capturing device

12 Character image conversion device

13 Character input device

14 Away telephone answering mode input terminal

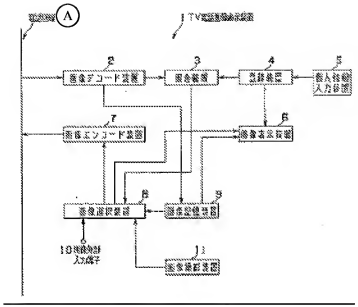


Figure 1

Key: A Telephone line

1 TV phone image display device

2 Image decoding device

3 Collating device

4 Registration device

5 Personal information input device

6 Image display device

7 Image encoding device

8 Image selection device

9 Image storage device

10 External image input terminal

11 Image-capturing device

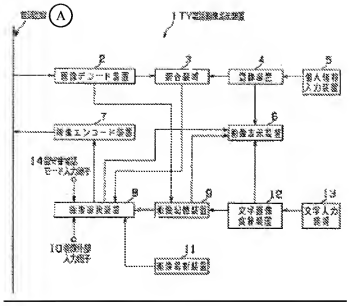

Figure 2

Key: A Telephone line

1 TV phone image display device

2 Image decoding device

3 Collating device

4 Registration device

5 Personal information input device

6 Image display device

7 Image encoding device

8 Image selection device

9 Image storage device

10 External image input terminal

11 Image-capturing device

12 Character image conversion device

13 Character input device

14 Away telephone answering mode input terminal

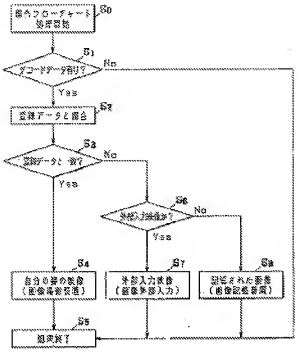


Figure 3

Key: S0 Comparison flow chart

Processing start

S1 Are there decoded data?

S2 Compare with registered data

S3 Is there a match with registered data?

S4 Picture of user

(image-capturing device)

S5 End processing

S6 Is there an externally input image?

S7 Externally input image

(external image input)

S8 Stored image

(image storage device)

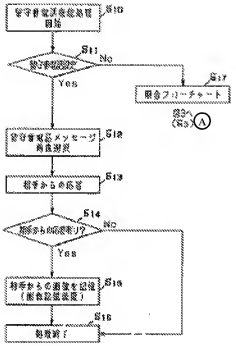


Figure 4

Key: A To Figure 3 (S0)

S10 Away telephone answering function processing

Start

S11 Away telephone answering set

S12 Away telephone answering message image selected

S13 Response from other party

S14 Is there a response from the other party?

S15 Image from other party stored

(image storage device)

S16 End processing

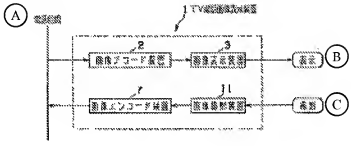


Figure 5

Key: A Telephone line

B Display

C Photography

1 TV phone image display device

2 Image decoding device

3 Image display device

7 Image encoding device

11 Image-capturing device